

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Connect America Fund)	WC Docket No. 10-90
)	
Developing a Unified Intercarrier)	CC Docket No. 01-92
Compensation Regime)	

**BANDWIDTH INC. REPLY COMMENTS ON
CENTURYLINK PETITION FOR A DECLARATORY RULING**

Bandwidth.com CLEC, LLC, together with its sole manager parent corporation Bandwidth Inc. (together, “Bandwidth”), submits these reply comments on CenturyLink’s Petition for a Declaratory Ruling. The Commission should accept the Court’s invitation to explain why the call control functions performed by a local exchange carrier (“LEC”) together with its Voice over Internet Protocol (“VoIP”) partner are specific to end office switches and affirm its *2015 Declaratory Ruling*.¹ Because the Court’s Remand questions whether an Internet Protocol (“IP”) switch also should make physical connections between trunks and loops to meet the functional equivalence test, and the incumbent LECs suggest reversing the *2015 Declaratory Ruling* on that basis alone, the Commission should reiterate the differences between interconnection in TDM and IP networks and explain why it was not and is not necessary to adopt a distinct functional equivalence criterion for “interconnection.”

I. The Commission Should Affirm Its *2015 Declaratory Ruling* to Remove Uncertainty

CenturyLink explains that controversies about the applicability of end office local switching for traffic exchanged between an over-the-top VoIP provider and the Public Switched

¹ *Connect America Fund et al.*, WC Docket No. 10-90, CC Docket No. 01-92, Declaratory Ruling, 30 FCC Rcd. 1587 (2015) (“Declaratory Ruling”).

Telephone Network (“PSTN”) persist. Although many terminating end office switching charges have been reduced to bill-and-keep since the Commission adopted its *2015 Declaratory Ruling*, originating end office switching charges are still positive. Affirming the *2015 Declaratory Ruling* would end any remaining uncertainty about a LEC’s ability to bill and collect end office access compensation for traffic originating from an over-the-top VoIP end user. Alternatively, should the Commission find that a LEC and its VoIP provider perform tandem rather than end office switching—which as explained herein would conflict with the *Transformation Order*—LECs would be entitled to bill and collect tandem switching charges for both terminating and originating traffic to that over-the-top VoIP end user. Moving over-the-top VoIP traffic into the tandem switching category would be inconsistent with the Commission’s stated preference to transition traffic to bill-and-keep.

The *Transformation Order*² intended that the intercarrier compensation rules should not depend on the technology used to originate or terminate traffic, including VoIP technology. Calls originated or terminated over VoIP are subject to the same intercarrier compensation obligations as any other wireline traffic. The VoIP provisions of the *Transformation Order* established a new regime to govern access charges with respect to all VoIP traffic, irrespective of what rules may or may not have existed prior to that Order, to “best balance[] the competing policy goals during the transition to the final intercarrier compensation regime.”³ The Commission can and should affirm its *2015 Declaratory Ruling* to terminate remaining controversies and restore the certainty it intended to provide in the *Transformation Order*.

² *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 17663 (2011) (“*Transformation Order*”).

³ Letter from Tamar E. Finn to Marlene Dortch, Secretary, CC Docket No. 01-92, WC Docket No. 07-135, WC Docket No. 10-90, at 2 (filed Dec. 8, 2014), <https://ecfsapi.fcc.gov/file/60001008335.pdf>.

II. The Commission Should Respond to the Court’s Invitation to Explain Why Tandem Switches Do Not Perform Call Control Functions.

The Court invites the Commission to “disclose [its] reasoning with the requisite clarity”⁴ to answer the “key question” of “what distinguishes end-office switching from tandem switching?”⁵ The answer to that key question is that the functions of originating calls, monitoring calls for termination, and initiating call set-up and take down are performed by end-office switches, but are not performed by tandem switches. The *Transformation Order* therefore requires that access reciprocal compensation charges apply to traffic to or from a VoIP end user, including an over-the-top VoIP end user, when the LEC or its VoIP partner performs these specific functions.

The record leading up to the *2015 Declaratory Ruling* contains ample evidence and legal citations to support the Commission’s determination that the call control functions performed by a LEC and its VoIP partner are the functional equivalent of end office switching and are not performed by a tandem switch. Bandwidth and Level 3 showed that the LEC/VoIP partnership performs call intelligence functions unique to an end office switch. For example:

“When an end user seeks to place a call in a traditional PSTN network, some piece of equipment in the network must determine that the subscriber is seeking to place a call. That function is performed by the end office switch. The call must then be received and processed so that it can be sent through the network for delivery. That receipt and processing function is performed by the end office switch. On the terminating end, some part of the network alerts the called party that someone is trying to set up a call. That function is also performed by the end office switch. And some part of the legacy network monitors the call to determine when the call terminates so that the communications path can be broken and the other party alerted that the call is over. Without these functions performed by the end office switch, there could be no call of any type, whether intraswitch, intraexchange or interexchange. Regardless of the underlying technology, these functions are the unique functions of the end office, and ***are performed nowhere else in the network***, irrespective of whether the wires connected to the subscriber’s side of the switch are high capacity facilities or a single twisted pair. It is these functions that ***distinguish the end office switch from tandem switches*** and

⁴ *AT&T Corp. v. FCC et al.*, 841 F.3d 1047 (D.C. Cir. 2016).

⁵ *Id.*, at 1052.

interexchange switches. These are functions that Level 3 and Bandwidth (and other similarly situated CLECs) perform together with their OTT VoIP partners, for which the VoIP Symmetry Rule and the *USF/ICC Transformation Order* requires they be compensated through access charges “regardless of whether the functions performed or the technology used correspond precisely to those use under a traditional TDM architecture.”⁶

The Declaration of Adam Uzelac (“Uzelac Declaration”) affirms that the core TDM end office functions of “detecting off-hook, initiating call set-up, processing of dialed digits to determine the network address to which the call will be routed, directing of the SS7 network, monitoring answer supervision, providing an answer message and detecting call termination—are all performed by the VoIP provider and its partner LEC.”⁷ The Uzelac Declaration also answers the Court’s question of why a tandem switch and the SS7 network do NOT perform these specific call control functions. The tandem switch does not “generate dial tone or process dialed digits” but “receives the addressed traffic and send[s] it on to its destination.”⁸ The SS7 network “acts at the request of the end office local switch ... using the information provided by the end office local switch.”⁹

The CenturyLink Petition explains why the cases cited by the Court do not establish that a tandem switch performs call control functions.¹⁰ Tellingly, the incumbents do not even attempt to construct an argument that addresses this aspect of the Court’s Order. The Commission should

⁶ Letter from Tamar E. Finn, Counsel to Bandwidth.com Inc. to Marlene Dortch, Secretary, CC Docket No. 96-45; CC Docket No. 01-92; WC Docket No. 03-109; WC Docket No. 05-337; WC Docket No. 07-135; WC Docket No. 10-90; GN Docket No. 09-51 at 3 (filed June 17, 2013) (emphasis added).

⁷ *Petition of CenturyLink, Inc. for a Declaratory Ruling*, WC Docket No. 10-90, CC Docket No. 01-92 (filed May 11, 2018) (“Petition”), at Declaration of Adam Uzelac ¶ 9 (“Uzelac Declaration”).

⁸ Uzelac Declaration, ¶ 6c.

⁹ Uzelac Declaration, ¶ 6d.

¹⁰ Petition at pp. 11-12; 15-16.

rely on the record evidence and legal analysis in this docket to explain the basis for and affirm its *2015 Declaratory Ruling*.

III. The Switch Function of “Interconnection” Is Not Based on, and Does Not Include, “Physical” Delivery or a “Tangible Connection.”

The Commission also should explain why it does not have to define a criterion distinct from call control that is the functional equivalent of TDM “actual or physical interconnection.”¹¹ As the *2015 Declaratory Ruling* found, “[d]irect comparisons between TDM network architecture and IP network architecture cannot be made precisely because IP-based networks *do not involve the same types of physical connections* as those found in traditional TDM networks.”¹² Just as interconnection of two networks can be direct or indirect (through a third party), the “delivery” of traffic in an IP environment can be direct (over a loop physically connected to an IP switch) or indirect (over multiple routes with the packets reassembled at the destination). The *Transformation Order* cites the *IP-Enabled Services NPRM*¹³ in the background section of its VoIP symmetry discussion.¹⁴ That NPRM contrasted circuit-switched from IP networks:

Whereas circuit-switched networks generally reserve dedicated resources along a path through the network, IP networks route traffic without requiring the establishment of an end-to-end path.... [I]n Internet Protocol networks, data is segmented into packets which are individually addressed and then transmitted over a series of physical networks which may be comprised of copper, fiber, coaxial cable or wireless facilities. When packets are transmitted via IP between two points, the network does not establish a permanent or exclusive path between the points. Instead, routers read packet addresses individually, and decide — sometimes on a packet-by-packet basis — which route to use for each packet. Thus, the routes that packets will take to the same destination may vary, depending on the best routing information available to the routers. Indeed, packets traveling in the oppo-

¹¹ *AT&T v. FCC*, 841 F.3d at 1056.

¹² *Declaratory Ruling*, 30 FCC Rcd. at 1601, ¶ 57 (emphasis added).

¹³ *IP-Enabled Services*, Notice of Proposed Rulemaking, 19 FCC Rcd. 4863 (2004) (“*IP-Enabled Services*”).

¹⁴ *Transformation Order*, 26 FCC Rcd. at 18003, n.1875.

site direction on the return communications between the same sending and receiving pair may follow an entirely different path.¹⁵

Thus it is not a single, dedicated physical connection between the switch and loop that is the key feature of interconnection in an IP network, but the ability to ensure the packet header provides information necessary for multiple network operators to deliver the traffic over diverse and potentially different paths from the calling to called party or vice versa. As the *2015 Declaratory Ruling* explained, in the case of VoIP calls, the “connection between the transport and termination point is accomplished via call control functions” rather than an actual physical connection by a switch between a trunk and loop serving an end user.¹⁶

The incumbents have not and cannot show that “delivery” requires “physical delivery” or “tangible connection” between an end office switch and the end user in an IP network. To the extent the historic access charge regime reflected TDM network architecture that relied on the actual physical connection of switches to lines, the FCC recognized years prior to the *Transformation Order* that those TDM features were not replicated or required in IP networks. The *Transformation Order* “supersede[d] the traditional access charge regime” to “regulate terminating access traffic in accordance with the section 251(b)(5) framework”¹⁷ “regardless of whether the functions performed or the technology used correspond precisely to those used under a traditional TDM architecture.”¹⁸ The *2015 Declaratory Ruling* affirmed that the “first phrase of the rule is ‘notwithstanding any other provision of the Commission’s rules’” which “makes clear

¹⁵ *IP-Enabled Services*, 19 FCC Rcd. at 4969-70 (footnotes omitted).

¹⁶ *Declaratory Ruling*, 30 FCC Rcd. at 1601, ¶ 28.

¹⁷ *Transformation Order*, 26 FCC Rcd. at 17916, ¶ 764.

¹⁸ *Id.* at 18027, ¶ 970.

that the VoIP symmetry rule takes priority over potentially conflicting rules.”¹⁹ To the extent prior access rules may have required actual, physical connections between a TDM end office switch and a loop to perform the interconnection function of a local switch, the *Transformation Order* superseded any such rule.

The Commission’s 2011 *YMax Order*,²⁰ which references a “physical transmission facility” and the “substantial investment required to construct the tangible connections” between a LEC’s switch and its customers, is one of those prior, potentially conflicting rules that was superseded by the *Transformation Order*. The Commission adopted the *YMax Order* on April 11, 2011. The *Transformation Order*, adopted six months later on November 18, 2011, acknowledged that “access services might functionally be accomplished in different ways depending upon the network technology” in the same paragraph and footnote that distinguished the *YMax Order* from the symmetry rule it adopted.²¹ The *Transformation Order* went on to emphasize that its Section 251 “rules were not as limiting regarding the scope of those reciprocal compensation charges as historically was the case in the access charge context.”²² This supports CenturyLink’s and Bandwidth’s position that the *Transformation Order*’s VoIP symmetry rule, adopted under Section 251(b)(5), discarded any physical connection requirements of the pre-*Transformation Order* TDM access charge rules, including the *YMax Order*.

¹⁹ *Declaratory Ruling*, 30 FCC Rcd. at 1597, n.74.

²⁰ *AT&T Corp. v. YMax Communications Corp.*, 26 FCC Rcd 5742, 5757 (2011).

²¹ *Transformation Order*, 26 FCC Rcd. at 18027, ¶ 970 & n.2028.

²² *Id.* at 18027, ¶ 971.

The incumbents cannot show that “delivery” in one prong of the current definition of end office access service²³ requires the “physical delivery” over a “tangible connection” between an IP switch and a VoIP end user under that or the other, alternative prongs of the definition.²⁴ If the Commission had intended to require “physical delivery” over a “tangible connection” it would have made that clear in the new definition of end office access service (and would have had to distinguish its prior description of how calls are delivered in IP networks); but doing so would have been completely inconsistent with its stated intention of making the rules technology-neutral. A declaratory ruling cannot, as the incumbents seek, rewrite the definition of end office access service to include a physical delivery or tangible connection requirement. Nor, as Verizon seeks, could it rewrite the VoIP symmetry rule to apply to terminating, but not originating, end office access service.²⁵ Both changes would require notice and comment rulemaking.

Bandwidth also agrees with CenturyLink that the arguments regarding the role of physical lines are circular—the distinction between a trunk and a loop is not self-evident and relies on the placement of the equipment called the local end office switch.²⁶ As the record and Commission rules show, end office local switching charges are not based on recovery of loop costs or the geographic area served by the local switch. A switch connects lines and trunks, but the switching function does not include the lines and trunks. Commission rules define the “local switching” element of access charges separately from the “end user common line” and “carrier common line” elements, which are the lines; and from the “transport” element, which includes the

²³ 47 C.F.R. §51.903(d)(1) (“The switching of access traffic at the carrier’s end office switch and the delivery to or from of such traffic to the called party’s premises”).

²⁴ *See, e.g.*, 47 C.F.R. §51.903(d)(3) (“Any functional equivalent of the incumbent local exchange carrier access service provided by a non-incumbent local exchange carrier”).

²⁵ *See* Comments of Verizon on Petition of CenturyLink for a Declaratory Ruling, at pp. 10-11.

²⁶ Petition at pp. 17-19.

trunks.²⁷ The key function of a local switch is the call control function that enables delivery of the call, not the physical connection of a trunk to a loop.

IV. The Commission Should Make Clear Self-help to Claw Back End Office Access Paid without Protest Would Violate the Filed Rate Doctrine and Produce a Manifest Injustice

If, notwithstanding the factual, legal and policy arguments that support affirming the *2015 Declaratory Ruling*, the Commission determines that LECs are not entitled to charge end office access for originating or terminating over-the-top VoIP calls, it should make clear that parties who billed and paid for end office access service acted in good faith reliance on the law as it was understood at the time. As the *2015 Declaratory Ruling* recognized, other than AT&T (and later Verizon), there was no evidence of any other interexchange carrier disputing payment for end office switching access charges for over-the-top VoIP traffic.²⁸ Bandwidth is concerned that, without explicit Commission direction, carriers that paid end office access from adoption of the *Transformation Order* to date will attempt to recoup those payments through self-help. Such unilateral refusals to pay violate the filed rate doctrine and force smaller carriers to divert resources from communications networks and services to litigation. Going forward, it is imperative that the Commission set clear, easy-to-administer rules and enforce them. Looking backward, the Commission should not provide a windfall to carriers that paid end office access charges without protest or penalize those that reasonably relied on an interpretation of the *Transformation Order* the Commission affirmed in 2015.

²⁷ See 47 C.F.R. §§ 69.104-69.106.

²⁸ *Declaratory Ruling*, 30 FCC Rcd. at 1610, ¶ 45.

V. Conclusion

The Commission continues to have an important leadership role in reducing intercarrier compensation disputes that should not be lightly forsaken. The Commission should answer the Court's questions on remand to explain the basis for and affirm its *2015 Declaratory Ruling*.

Respectfully submitted,

/s/ Greg Rogers

Greg Rogers
Deputy General Counsel
Bandwidth Inc.
900 Main Campus Drive
Venture III
Raleigh, NC 27606
grogers@bandwidth.com

/s/ Tamar Finn

Russell Blau
Tamar Finn
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Ave., N.W.
Washington, DC 20004
Russell.Blau@morganlewis.com
Tamar.Finn@morganlewis.com

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